LOUISVILLE MEDICAL NEWS.

"NEC TENUI PENNA."

Vol. VI. **LOUISVILLE, JULY 20, 1878.** **No. 3.**

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EDITORS.

Original.

A MICROPHONE FOR THE HEART.

BY J. W. HOLLAND, M. D.

Professor of Materia Medica and Medical Chemistry in University of Louisville.

Experimenters with the microphone as applied to heart-sounds, in order to be successful, must overcome the following difficulties:

1. It is so much affected by all the sound-waves that reach it from every quarter, that unmodified reports of those generated by the heart are, in its present state, out of the question.

2. It is doubtful if it gives an exact reproduction in quality of any of the sounds, such as watch-ticking, fly-walking, rubbing of brushes, etc., which are used to test its magnifying powers. Though words are distinctly articulated, and voices may be recognized through it, there is always something unnatural about the tones.

3. An instrument adjusted to one range of sounds will not correctly render others out of this range.

4. A rude jostling of the movable piece accompanies the pulsation when the instrument is applied over the heart, thus producing loud noises which have no connection with the natural sounds.

5. In ordinary auscultation a thick layer of soft tissues will muffle the sounds considerably: they dampen the responsive power of the microphone in an exaggerated degree.

In some experiments recently made in this direction I have had a measure of success which, although comparatively small, yet a note of it made public may be of help to others working to the same end.

To reduce the value of the first-named difficulty, as the instrument can not be insulated by mechanical means from the thousand city-noises that distract it during the day, I choose "the stilly night" and a quiet quarter.

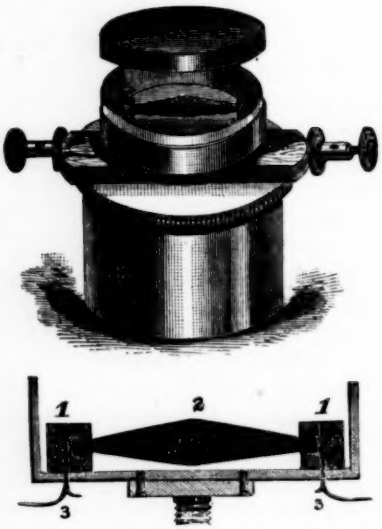
For the second difficulty I can find no remedy, though the instrument described below is more faithful in all respects than any of the numerous forms I have used.

To meet the third, it is suggested to use an arrangement which will allow the easy substitution of movable carbons of graded weights, or a very fine adjustment of pressure at the points of contact.

The fourth I have to some extent obviated in the following way: When the subject is in the supine position the heart recedes from the chest-wall, and the force of its thump is much reduced. By attaching a heavy weight to the microphone, inertia subdues the gross motion and thumping noise without affecting the sound-vibrations. The instrument is applied so that the movable carbon rests on its sides at its extremities.

The best device out of many, more or less complicated, is a modification of the simple instrument with which Prof. Hughes first astonished the world. To make one, take a scrap of gas-carbon such as is used in the Grenet cells of ordinary medical batteries. (This can be obtained in Louisville of Appel & Harris, electrical-instrument makers.) From it break three pieces, which can be modeled after those in the figure by rubbing down on sand-paper. Two at the

ends (see 1 in the cut) are of the size and shape shown. With an awl drill a pivot-hole in each one fourth inch deep and one eighth inch wide. The middle piece (2) is spindle-shaped, one inch long, and about one eighth inch broad at the middle, with dull points. The figure is somewhat larger than the actual size.



The end pieces are attached by wire loops to the bottom of a half-ounce ointment-box of "impervious wood." A better receptacle for the carbons could not have been devised than this same ingeniously-made box. The loops of copper wire (3) serve as conductors when connected with the binding-posts. The box is firmly fixed on a disc of brass, which screws into a weight of about three pounds. A strip of wood serves as a base for the connection with the telephone and the battery.

Resting upon a table as a paper-weight, it will be found sensitive to all the usual tests. It renders more truthfully than any other form I have used the different tones of the human voice. With it I have been enabled to study at ease, through a connecting-wire of considerable length, my own heart-sounds. The most perfect conditions for this experiment are a quiet room, night-time, recumbent posture, firm pressure of the top of the microphone over the præcordia, a telephone with a horse-shoe magnet, and a battery giving a feeble, steady current.

A series of trials with it made at the hospital and upon private patients lead to the following conclusions:

1. That a noisy hospital-ward is a bad site for the test.

2. That success is dependent largely upon the amount of flesh that covers the ribs of the subject. The sound-waves are never transmitted with clearness unless the person is lean.

3. That the modifications produced by disease are not reported with a distinctness surpassing, if equal, to that attained by the unaided ear.

4. That the rhythmic sounds of the heart mask all others produced in the chest, so as to make the instrument of no value in pulmonary diagnosis.

5. That a medley of sounds, like rubbing and thumping, probably due to the movements of the fetus, utterly annihilate sounds of the fetal heart, such as are plainly audible to the trained ear unassisted.

6. That the prospect of a successful employment of the microphone in physical diagnosis is, from present appearances not very encouraging.

LOUISVILLE.

Correspondence.

LETTER FROM MUNICH.

To the Editors of the Louisville Medical News:

In London I found every body busy, as it is what is known as the "season." On this account I found it difficult to meet the leading men at the hospitals. Some of them, for instance Mr. Hutchinson, have been compelled to give up their hospital appointments on account of the press of private business. Mr. H. has retired from Moorefields Hospital.

It is exceedingly interesting to notice the various methods of the different men of operating. Mr. Streatfield, of Moorefields, in

making his incision for extracting cataract, does it in a most curious manner. He uses the old Buis knife. He makes the puncture into the anterior chamber as usual, but does not make the counter-puncture. Instead of that, after pushing his knife in for about one eighth of an inch, he cuts out, repeating this two or three times, till the incision is sufficiently large. What surprised me was the rapidity and ease with which he did it. His first incision, of course, evacuates the contents of anterior chamber, allowing the iris to come forward in contact with posterior surface of cornea; yet he makes two or three more incisions, without even having the knife becoming engaged in the iris. The after-steps are the same as usual. In operating for squint I find the subconjunctival section of the tendon universally made. The incision through the conjunctiva is made near the lower edge of the muscle, the muscle is picked up on the hook and the tendon divided by running the scissors under the conjunctiva. This, of course, lessens the dangers of granulations springing up.

I had the pleasure of hearing the lecture of Sir Henry Thompson, at the University, on the microphone. Being interested in diseases of the ear, the idea struck me on first hearing of the microphone, as to the possibility of having it connected with the trumpet in cases of extreme deafness. Of course not total deafness. One difficulty would be the portability of the instrument. Another difficulty is, the instrument, in its present imperfection, does not respond to any thing but what comes in actual contact with it. Sir Henry saw the difficulties with which he had to contend, acknowledged the failure of his experiments, and retired very gracefully, saying that it was his wish that such experiments should not be made first in Paris, Berlin, or Vienna, but in London; in his *alma mater*. .

On a visit to King's College Hospital I was delighted to see several operations by Mr. John Wood. What particularly attracted my attention was his thoroughness in anatomy. As he proceeded in his operations he stated exactly what muscles he was cutting through, what nerves or vessels he was pushing aside, what vessels he would be likely to sever; thus enabling the student to follow directly the point of his knife. He removed a stone from the bladder of a weak, old man, performed exsection of hip-joint, removed a tumor from the breast of a woman, and performed several minor operations. He appears to be a convert to the antiseptic treatment, carrying it out to its minutest details. Mr. Wood is considered one of the best, if not the best anatomist in London.

From London I visited Utrecht, where I met Profs. Donders and Snellen, I found them both exceedingly kind. They showed me and illustrated to me the use of the various instruments they have on hand to unravel the mysteries of the refraction and accommodation of the eye. Instruments with which they measure the diameter of the cornea and lens, the curvature of their surfaces, and the depth of the anterior chamber. Prof. Donders took great pains in assisting me to fathom the depths of ophthalmology, into which I had not yet ventured. He illustrated to me his method of measuring the quantitative amount of color-blindness. This matter of color-blindness is not attracting the attention it should. It should excite the interest, especially of railroad and steamboat men. How many railroad and steamboat accidents, which if properly traced to the true cause, would be found to have originated in the inability of the engineers, pilots, or switchmen to distinguish the different lights at certain distances, is difficult to surmise. As Prof. Donders says, some slight attention is paid to the qualitative perception of colors, but none to the quantitative. His method is not very simple, but very thorough. It is on the same principle as used in our common test-types for accuracy of vision. I think the sooner all officials and men on our lines of travel by river and railroad are put to such tests, the sooner will all risks by such transportation vanish.

In Berlin I saw Virchow, Langenbeck, Helmholtz, Schweiger, and Baumeister, all

ready and willing to render me such assistance as was in their power. My great regret was that I had not more time to spend with them, as there is an immense field of labor there, consequently great advantages for learning.

To Vienna I hurried, expecting there to see ophthalmology and otology in its perfection. What a disappointment. I firmly believe that the air in the dissecting-rooms of the medical colleges in Louisville is as pure as that in the eye wards of the Vienna hospital. The weather was excessively warm, and when I stepped into the ward where Prof. Arlt was operating—not only every bed being full, but about twenty-five medical students in there besides—there was not a window open. You remember nearly all windows in Vienna have double sashes, an inner and an outer one. All of them, of these wards, were closed. The first whiff I received of the air made me think that probably I had made a mistake and gotten into the dead-house, and they were holding post mortems. But no; there they were attempting to administer chloroform to a child. I have hardly made up my mind yet as to whether the little one was resisting the inhalation of the anæsthetic or the impure, stifling air of the room. I am inclined to the latter. I know I took in as little of it as possible. Here I met Profs. Arlt, Stellwag, Politzer, Gruber, and others, all prominent in the profession.

Since arriving here I have seen used a new mydriatic known as Duboisia, the active principle of Duboisia myoporoides. A. W. Gerrard, T. R. S., Teacher of Pharmacy, University Hospital College, has kindly furnished me some facts in reference to it.

The natural order in which the above-named plant has been placed (*solanaceæ*) and its powerful physiological action, especially in dilating the pupil, and producing dryness of the mouth and throat, are facts in common if not identical with atropine.

The London Lancet of March 2d contained papers by Drs. Ringer and Tweedie in reference to this drug. The reaction of Duboisia with some substances differs slightly from that of atropine. The physiological action of the drug on the eye is that it quickly dilates the pupil. Probably it is a little more rapid than atropine. One sixtieth of a grain injected under the skin of a patient suffering from night sweats greatly decreased them; caused great dryness of the mouth. Like atropine, it greatly antagonizes the action of muscarine on the heart of a frog. It also produces tetanus after some hours. Mr. Gerrard concludes that it is not atropia for the following reasons:

1. It is more than twice as soluble in water.

2. It has more power in neutralizing acids than atropine.

3. Its behavior to sulphuric acid under certain conditions is different.

4. When boiled with baryta the odor given off is entirely different under the same conditions.

What do we expect from such a drug that we can not accomplish with atropine? So far it has proven useful in its rapidity of action, and also in cases that are easily poisoned by atropine. Another advantage is its solubility, not necessitating the addition of an acid in making the stronger solutions, thus avoiding a great irritant to the conjunctiva.

A myotic, eserine, the active principle of Calabar bean, has lately came into use. It is said to accomplish wonders in a certain class of cases.

W. CHEATHAM, M. D.

MUNICH, June 28th.

"BAD MEDICINE" AGAIN.

To the Editors of the Louisville Medical News:

In the June number of New Remedies I find the above subject reviewed *in extenso* by the editor of that journal, and especially the article written by "Saddlebags."

After quoting a few sentences of my article, in which the fact is stated that the druggists' shelves are filled with remedies unknown to the pharmacopœia, and of the properties and doses of which the prescriber

is in total ignorance, except in so far as he may be enlightened by the claims set up for the preparations by the ambition of the manufacturer, *all of which he acknowledges to be true.* He then copies an "antiquated formula," which I had facetiously appended to my article, handed down from our grandmothers, and asserts his conviction that that is the extent of my pharmaceutical knowledge; basing his belief upon a sentence in my article in which I arraign many of the fluid extracts (and elixirs *made from fluid extracts*) as being generally worthless, from the fact that it was my supposition that the "cooking process" was fatal to their efficacy. My want of knowledge of pharmacy is charged upon this score, and he fortifies himself thus: "For if he were at all familiar with the subject, he would know that elixirs are not 'cooked,' nor fluid extracts either, for that matter; and the 'incubation' process, as applied to the manufacturer of pharmaceutical products, is restricted, in a figurative sense, to graduates in pharmacy."

It will not be necessary, I suppose, to assert or to attempt a defense of my knowledge of pharmacy. All I attempted to show was the *fact* of the utterly inert properties of many of these preparations, and to suggest the possible or probable cause. I will, however, say that the dispensatory, in giving directions for making fluid extracts, after the process of percolation is completed, directs that the product shall be evaporated to a given strength, and suggests a "possibility of injury by heat." "In the evaporation great care is taken not to injure by too great heat." And further: "*Properly prepared*, the fluid extracts are among the most efficacious, convenient, and elegant medicinal preparations; whereas, if *carelessly* or *ignorantly* made, there are probably none which would be *more likely to deceive the hopes of the practitioner.*" [The italics are by "Saddlebags."] Now I will say nothing about the processes by repercolation and displacement in vacuo; for it is only when a process by evaporation is concerned that I care to discuss the subject; and I do maintain that where much heat is used, especially with products of a volatile character, it is possible to dissipate the valuable part of the preparation, and give an inert and worthless drug.

In these days when time is valuable, and money of more worth than honor, I can readily believe that the *rapid evaporation by boiling* may oftener be resorted to than the slower one contemplated by the dispensatory. I know that very many articles are made without evaporation; but if any are made this way, then my critic must concede the point. If he means to say that they are all too honest to do such things, I will not argue the point at all. What he means by "graduates in pharmacy, figuratively speaking," I do not know. I do know, however, that of the fluid extracts, whose general excellence for purposes of prescription every physician will concede, many are utterly unreliable as compared with the powder or tincture; and the list could be very largely extended, but I mentioned only one (Guarana), and this simply for illustration.

So much for the "cooking process." Now the subject of revision of the pharmacopœia engages the attention of the critic, and he says: "None of the writers whose letters are published in the series referred to appear to have appreciated what seems to us the *fons et origo mali*, or the 'true inwardness' of all this trouble. Some years ago this difficulty was apprehended, and our predecessors in medicine and pharmacy undertook to establish a national standard for pharmaceutical processes, and provided for its revision and amendment, at what appeared to them, in their time, suitable intervals. Not only have the intervals proved too long to enable the national standard to keep pace with the demands of trade and the requirements of medical practice, but those who have exercised a controlling influence in the recent revisions of the pharmacopœia appear to have entirely failed to recognize the fact that the work was rapidly becoming less looked to as a standard; that a multitude of remedies were

coming into use concerning which the pharmacopœia gave no information whatever, and that many pharmacopœial preparations, on the other hand, were less in demand than formerly; and when suggestions were offered to them, having in view a correction of the fault, their adoption was obstinately and successfully opposed. The result is, that every manufacturer is *obliged* to follow his own methods in the making of fluid extracts, elixirs, syrups, etc.; and he manufactures them because there is a *demand* for them in preference to a multitude of articles which are officinal, it is true, and which, therefore, every conscientious apothecary is bound to keep on hand, but which are rarely called for, and almost forgotten, if indeed the younger members of the medical profession ever heard of them at all."

I can most heartily agree with him in this, and I do think it shameful that the revision has been allowed to go "by the board" simply in deference to the petty quarrels of some jealous gentlemen. It is a work which we sadly need to have done, and I hope very soon to see a volume issued abreast of the necessities of the times.

If drug-manufacturers are compelled to use methods of their own, and for that matter introduce new articles, let them do so after a set formula, and not strive to get up some unheard-of compound, or claim virtues for a peculiar process that is in the shape of a trade-mark; thus treading so closely upon the heels of charlatanism that it is extremely hard to know where you are being led. In these days it is almost impossible for reputable physicians to know when they are within the domain of legitimate medicine; and indeed it was only a few years ago when a paper was read at a meeting of the American Medical Association, in which a proprietary medicine was unwittingly recommended, and the fact of its illegitimacy was not known until pointed out by a manufacturing druggist (Dr. Squibb), who of course understood the matter. Not only is this true, but one of the very processes under discussion for making fluid extracts *is patented*, and so also is the most recent method of separating salicylic acid.

So far as I allude to advertising claims, and not to medical literature proper, the slurs attempted by the reviewer are undeserved and unmanly. I alluded only to *advertisers*. No person has a higher regard than "Saddlebags" for medical periodical literature, and it is to this source that we often refer for valuable information, and but for their aid we should indeed be sadly befogged.

There is quite a difference, however, between the reports of cases, discoveries in therapeutics, etc. found within their pages, and the virtues claimed for articles lauded by advertisers in the sheets devoted to that purpose. Were he to take the trouble to examine the advertising pages of his own journal, he would be compelled to admit that every thing contained in the advertising pages of a "fashionable medical journal" would not do to pin his faith to.

In closing this article, I wish to disclaim any wish or desire to be understood as opposing the use of fluid extracts or elixirs, or any other preparation that has any virtue in it, but the discussion has unnecessarily taken that shape. My attempt was simply to call attention to the fact that many of these preparations *are inert* and valueless, and merely suggested one probable cause; and also to call attention to the fact of the rapidly-growing list of entirely new and unheard-of articles being added to the long list of advertised drugs of marvelous properties and wonderful curative virtues, and attempted to show that the tendency of all this was to quackery of the worst form. It is a well-known truth to the medical fraternity that new remedies are multiplying with the most startling rapidity, and without the sanction of a fair and impartial test in the hands of a patient and painstaking physician, but from unknown and unheard-of sources the *manufacturing druggist* seizes on some vegetable or animal wonder ("*minerals*" are no longer fashionable), and, after a formula known only to himself, floods the

country with "*our own*" articles, until, as I said, a physician is utterly bewildered to know whether he is a quack or not. This is a sad fact, and no one regrets it more than

SADDLEBAGS.

MIDWAY, KY., July 15, 1878.

Books and Pamphlets.

THE PATHOLOGY OF SEBORRHEA. By Arthur Van Harlingen, M. D., Chief of the Skin Clinic, Hospital of the University of Pennsylvania. Reprinted from the "Archives of Dermatology," April, 1878. New York: G. P. Putnam's Sons, 182 Fifth Avenue. 1878.

An interesting paper, containing some original ideas which are apparently well founded. Dr. Van Harlingen formulates his views as follows:

1. The sebaceous secretion is derived from fatty metamorphosis of the enchyma cells of the sebaceous glands. These cells are homologous with those of the stratum mucosum of the skin. They have nothing in common with the cells of the horny layer.

2. Seborrhea is a disease of the sebaceous glands, characterized by the pouring out of an increased quantity of sebum, more or less altered in chemical and physical composition. In comedo and seborrhea sicca, properly so called, the secretion is condensed to a fatty consistency, while in seborrhea oleosa it remains in an oily state. In each of these affections, however, microscopic examination shows epithelial cells in a state of more or less complete fatty degeneration, and breaking down into granular debris. Horny cells are only found adventitiously.

3. Certain forms of disease, heretofore commonly classed as seborrhea sicca, should properly be removed from the category of diseases of the sebaceous glands, since the pathological product of these cases is not sebum, but epithelium, from the horny layer of the skin. Any sebum which may be present is a mere accompaniment of the epithelial product. For these cases the designation pityriasis, or pityriasis simplex, would seem appropriate.

L. P. Y.

Miscellany.

OPIUM-DUCKS.—In Mr. Baber's recently-published official report on the route of Mr. Grosvenor's mission through the great opium-growing districts of China, between Ssû-chan and Yuman, it is said the whole district is given over, for hundreds of miles, to the cultivation of opium and ducks, called locally "opium-ducks," which frequently supplied Mr. Baber and his party with a meal, and do, he says, really appear to stupefy themselves by feeding on the narcotic vegetable. They allowed the travelers to walk openly up to within twenty yards of them, and even then they rose very languidly. The natives assert that the flesh of these birds is so impregnated with laudanum, as to exercise a soporific influence on the consumer. But a little more careful verification is necessary before a story of this kind is accepted in all its details.

GOUTY DEPOSITS.—The difficulty of effecting the absorption of gouty deposits over the joints is well known. Dr. Pouzet has experimented on this subject, and concludes that iodide of lithium will often effect a remarkable diminution in the size of the tophi by eliminating uric acid through the kidneys.

THE METRIC SYSTEM IN A NUT-SHELL.—By Edw. Wigglesworth, M. D. [The Metric Bureau, 32 Hawley Street, Boston, will furnish metric prescription-blanks to order, to druggists or physicians at four-fifths printer's rates, or any blank can be made sufficiently metric by a perpendicular line at the right, headed *grams*.]

WASHINGTON, May 3.—Surgeon-General Woodworth, of the U. S. Marine Hospital Service, has issued a circular, with the approval of Secretary Sherman, requiring medical officers of the Marine Hospital Service to make use hereafter for all official, medical, and pharmaceutical purposes, of the metric system of weights and measures, which had already, under the act of July 28, 1866, been adopted by this service for the purveying of medical supplies.—*Boston Daily Advertiser, May* 4, 1878.

The metric system is already *legalized* in both America and England. The only question now is, which of the two, the most progressive or the most conservative nation on earth, shall be the first to definitely and finally adopt it as an *exclusive* system? [N. B.—England was four hundred years be-

hind the continent in adopting our present arithmetic.] Russia has already taken the preliminary steps toward its final adoption. The rest of the civilized world long since made the system obligatory, in whole or in part, except that, in Sweden alone, its obligatory use is to date from a period in the future, 1889.

Now, what is this metric system? Metric is from the Greek word "metron," a measure, spelled with Epsilon, e short, and therefore, pronounced mĕt-ric.

The meter [measure] is, practically, a fixed quantity, namely, the ten-millionth part of the earth's quadrant from the equator to the north pole. With the meter every thing can be *measured*, for it is itself the unit of length; a cube, the edge of which is the tenth of a meter, is the unit of capacity [liter], and the weight of a cube of rain water, at its extreme contraction, the edge of which cube is a hundredth of a meter, is the unit of weight [gram].

It is the gram alone which concerns physicians, for, in the metric system, *every thing is best prescribed and dispensed by weight alone;* numbers upon a prescription paper being regarded by the pharmacist as representing grams, unless the contrary is expressly stated. The fractions are always decimal.

The table is easily learned. It consists of six words, as prefixes, whether we deal with grams, liters, or meters. These are: deci for tenth, centi for hundredth, milli for thousandth, deka for ten, hekto for hundred, kilo for thousand. Having these few words, the terms of troy, avoirdupois, and apothecaries' weight, and of liquid measure, may be relegated to the limbo of pounds sterling, shillings, four-pence, ha'pennies, and farthings. As we say dime, cent, mill, so we say decigram, centigram, milligram. These prefixes are Latin, and *diminish* the value. Deka, hekto, and kilo are Greek, and *increase* the value. The mnemonic is G I L D, *i. e.*, Greek increases, Latin decreases. Deka occurs in the English word decade; hekto in hecatomb; kilo in chiliad.

"Being accustomed to the words, mill, cent, and dime, we shall find the words 'milligram,' 'centigram,' and 'decigram' quite as simple and easy to pronounce as our words 'pennyweight-troy,' 'hundredweight-avoirdupois,' 'scruple-apothecaries,' etc., notwithstanding the assertion to the contrary of those who grieve to give up 'short and sharp' Anglo-Saxon words used in our present *familiar* old tables of weights and measures."

Practically, moreover, for physicians, the whole system is reduced to grams and centigrams, just as, in money, to dollars and cents. On the right side of the prescription paper draw a perpendicular line from top to bottom. This decimal *line* takes the place of all the decimal *points*, and obviates the possibility of mistakes. This is the way dollars and cents are separated on business papers. Additional security is gained by writing the decimal fraction [centigrams] of half size and raised above the line [of grams], since it represents a numerator of which the denominator, 100, is omitted. To make assurance doubly sure, "grams" may be written over the integer-column of figures, and, if wished, the word "decimals" over the decimal column.

Now, what is a gram? or rather, the values, metrically expressed, of our present awkward weights?

	Prussian.	Practical.	Precise.
Grain I =	0.06	0.06	0.065
℈ I =	1.25	1.25	1.29
ʒ I =	3.75	4.0	3.80
℥ I =	30.0	32.0	31.1

The "practical" table alone concerns us. The "Prussian" [by order of the Prussian Ministry, August 29, 1867] is given merely to show that our table is even nearer the actual truth than one which has been proved by actual experience to answer every purpose. The values of the grain and scruple are a little too small. As they are used for powerful drugs, this is an error in the right direction. The values of the drachm and ounce are a trifle too large, but the proportions and therefore the ratios of drug to vehicle are preserved.

A prescription written metrically is always proportionate; and whether the pharmacist uses pennyweights, pounds, or tons; gills, pecks, or chaldrons; pints, gallons, or hogsheads, the ratios are preserved, and a teaspoon dose contains the same amount of medicine.

As regards administration, a teaspoon represents five grams, a tablespoon twenty grams; for a teaspoon holds one and one third fluid drachms, a tablespoon a trifle more than four times as much.

In the metric system *every thing is weighed*, thus obviating the difficulties of evaporation, refraction, and adhesion, and obtaining more conveniently more exact results. In our old "systemless system" some fluids were measured. How shall we obtain with weights, the desired bulks of fluids with varying weights? Must we learn the specific gravities of all fluids? *Not at all!*

1. Fixed oils, honey, liquid acids and chloroform must at present be prescribed in our old weights, not measures, according to the pharmacopœia. Here change old weights to metric ones.

2. Not enough chloroform or ether is included in any one prescription to admit of harm arising from the amount contained in a single dose, even were their weights regarded as the same with that of water. Moreover, it is not difficult to remember that ether weighs seven tenths as much as water, chloroform twice as much as ether.

3. There remain infusions and tinctures, glycerines and syrups. These four are used in bulk as doses, or as solvents or vehicles. The former two may be regarded as identical in weight with water, the latter two as one third heavier; and when prescribing these we need merely write, by weight, for four thirds as much as we should write for were we prescribing water, and we obtain an equal bulk. The teaspoon or tablespoon dose will then contain the desired amount of the drugs employed.

Or, simplest of all, we can make any mixture up to any desired bulk by merely directing the druggist to use enough of the vehicle to bring the whole mixture up to the requisite weight for that bulk.

THE METRIC SYSTEM IN MEDICINE.

Old Style.	Metric—gms.
♏j or gr. j equals.....	.06
f℥j or ℥j equals.....	4.
f℥j or ℥j equals.....	32.

The decimal line, instead of points makes errors impossible.

As .06 (drug) is less than a grain, while 4. and 32. (vehicle) are more than the drachm and ounce, there is no danger of giving too large doses of strong drugs.

C. C. used for grams causes an error of five per cent (excess).

A teaspoon is 5 grams; a tablespoon is 20 grams.

EQUIVALENTS.

Troy Weight.	Grams.	Troy Weight.	Grams.
Grain, 1/60	.001	Grains, 60	3.89
" 1/30	.002	" 80	5.18
" 1/20	.003	" 90	5.83
" 1/15	.004	" 96	6.22
" 1/12	.005	" 100	6.48
" 1/10	.006	" 120	7.75
" 1/8	.008	" 150	9.72
" 1/6	.011	" 160	10.37
" 1/4	.016	" 180	11.66
" 1/3	.022	" 200	12.96
" 1/2	.032	" 240	15.55
" 1	.065	Drachms, 6	23.3
" 2	.13	" 8	31.1
" 3	.19	" 10	38.9
" 4	.26	" 12	46.6
" 5	.32	" 14	54.4
" 6	.39	" 16	62.2
" 8	.52	" 20	77.7
" 10	.65	" 24	93.
" 12	.78	Ounces, 4	124.
" 15	.97	" 5	155.
" 16	1.04	" 6	186.
" 18	1.17	" 7	217.
" 20	1.29	" 8	248.
" 24	1.55	" 9	279.
" 30	1.94	" 10	311.
" 36	2.33	" 12	372.
" 40	2.59	" 16	496.
" 50	3.24		

WANDERING NEEDLES.—London Lancet: M. Silvy recorded some years ago the case of a woman who had a *penchant* for pins and needles so strong that she made them, in effect, part of her daily diet, and, after her death, fourteen or fifteen hundred were removed from various parts of the body. Another case, almost as striking, has been recorded by Dr. Gillette—that of a girl in

whom, from time to time, needles were found beneath the skin, which they perforated, and were removed by the fingers or forceps. Concerning the way in which they had got into her system no information could be extracted from her. She was carefully watched, and in the course of eighteen months no less 320 needles were extracted, all being of the same sizes. Most were black and oxidized, but some had retained their polish. The majority were unbroken. They passed out of various parts of the body above the diaphragm at regular intervals, but in a sort of series, and always in the same direction. Most escaped in the region of the left nipple, and a few escaped in the arm, axilla, thigh, temple, and cheek. Sometimes several passed out of the same opening. The largest number which escaped in a single day was sixty-one. A curious phenomenon preceded the escape of each needle. For some hours the pain was severe, and there was considerable fever. She then felt a sharp pain, like lightning, in the tissues, and on looking at the place at which this pain had been felt, the head of the needle was generally found projecting. The needles invariably came out head foremost. No bleeding was occasioned, and not the least trace of inflammation followed. The doctor in attendance extracted 318. They were sometimes held firmly, and seemed to be contained in a sort of indurated canal. It was conjectured that they had been swallowed with suicidal intentions; but, on the other hand, the way in which the needles escaped in series, and their direction with the heads outward, suggested that they had been introduced through the skin. That little weight is to be attached to the place at which the needles escape as proof of their mode of introduction is evident from a case recorded by Villars of a girl who swallowed a large number of pins and needles, and two years afterward, during a period of nine months, 200 passed out of the hand, arm, axilla, side of thorax, abdomen, and thigh, all on the left side. The pins, curiously, escaped more readily and with less pain than the needles. Many years ago a case was recorded by Dr. Otto, of Copenhagen, and mentioned at the time in The Lancet, in which 395 needles passed through the skin of an hysterical girl, who had probably swallowed them during an hysterical paroxysm; but these all emerged in the regions below the level of the diaphragm, and were collected in groups, which gave rise to inflammatory swellings of some size. One of these contained 100 needles. Quite recently Dr. Bigger described before the Society of Surgery of Dublin a case in which more than 300 needles were removed from the body of a woman who had died in consequence of their presence. It is very remarkable in how few of the cases the needles were the cause of death, and how slight an interference with function their presence and movement cause. From time to time their detection by a magnetic needle is proposed as a novelty; but, as Dr. Gillette reminds us, this method was employed by Smee forty years ago, and has often been adopted since.

Is Consumption Contagious? — From the time of Aristotle to the present, various medical writers have urged that phthisis may be propagated from one individual to another through the medium of a material cause. Although we feel bound to say that the supporters of this doctrine have been in the minority, yet they include among them many of the celebrities of our profession, and there can be no doubt whatever that many of the most illustrious pathologists and clincal observers of our day coincide in this view. In Dr. R. Morton's "Treatise of Consumptions," published in 1694, and Dr. T. Young's "Practical and Historical Treatise upon Consumptive Diseases," published in 1815, these opinions are set forth with great force and vigor. It is curious to notice that the contagiousness of phthisis is, and has been, very generally held in Southern Europe; that it has been doubted, as a rule, and especially during the past century, in North Germany and Great Britain, while French authorities have been much divided

on the question. Since the investigations of Villemin, Wilson Fox, Sanderson, and others on the inoculability of tubercle, and the spread of the disease from local infective centers, physicians are much less inclined than they formerly were to underrate the importance of contagion as a factor in the causation of this disease. Dr. Walshe, in 1860, considered the influence of contagion any thing but proven, but in 1871 he had considerably modified his views, for he said, "My belief in the reality of such transmissibility has of late years strengthened. I have now met with so many examples of the kind that *coincidence* becomes itself an explanation difficult of acceptance." Cases due to a supposed contagion are generally of an inflammatory character, and very rapidly run on to destruction of the lungs and a fatal termination. We are frequently asked why, if consumption be contagious, wives and husbands who have been in close attendance on their diseased consorts do not inevitably become affected? The answer to this query is, that even when experiments have been carried out on animals, the tuberculizing process occasionally fails to take place, and the direct transmission of infecting particles from the lungs of one individual to another is obviously much more liable to failure. As a matter of practice, we think that it can not be too strongly enforced that it is a very dangerous proceeding to regularly share the bed of a phthisical patient, and to be habitually in close contact with, and attendance on, such a person.

TUBERCLE.—British Medical Journal: The question of tubercle seems entering upon a new and somewhat unexpected phase; indeed, it seems to require the mental agility of a pathological acrobat to understand the series of transformation scenes to which we have been treated. As our readers are aware, since Schüppel's discovery of "giant-cell systems" in scrofulous glands, there has developed a remarkable view that "giant-cell systems" are characteristic of tubercle; this has been maintained by Hering, Buhl, and others on the Continent, and adopted by Green, Hamilton, and many pathologists here. Virchow's followers have shown that giant-cell systems are distinctive of, not tubercle, but cells undergoing caseous degeneration under any and all circumstances; but this has not been regarded. Now, certain eminent French authorities, headed by Prof. Charcot, affect to maintain Laennec's views "slightly modified." They argue thus: Tubercle is characterized by the presence of giant-cells; all caseous deposits in the lungs and glands, at certain stages, may be found to contain tubercle; therefore, all such products are tubercular; and M. Charcot thinks that the "independent existence of caseous pneumonia requires to be supported by new facts." Thaon considers all strumous inflammations tubercular, or rather that all tubercle is the expression of the strumous diathesis; and that, as giant-cell systems are found in strumous glands, tubercle is only a specific product of strumous inflammation. The question of tubercle seems to us to hinge upon this: Is it a specific growth allied to the sarcomata, or is it an inflammatory product? If it be a specific growth, it is certainly determinable in a manner unlike any other member of the class, as the experiments of a few years back showed; and recently Friedländer (Virchow's Archiv., November, 1876) produced giant-cells, and all by cutting the recurrent laryngeal nerves in dogs. If it be inflammatory, there is an end to all dispute. If the word tubercle could be allowed to mean no more than "papule" or "pustule," that is, a form of inflammation attacking certain structures and giving rise to certain appearances, but depending upon sometimes local and sometimes general causes, a great step would have been made toward the simplification of this much-vexed and difficult problem. At present, we feel sure that many teachers must be sorely perplexed in their endeavors to be at the same time honest to themselves, and yet to teach such views as are likely to satisfy examiners.

Selections.

New Remedy for Tape-worm.—London Med. Examiner: In a recent number of the Berliner Klin. Woch., Dr. Brōking, of San Remo, introduces to the notice of the profession a new anthelmintic remedy in common use among the people of Northern Italy. It appears that the fresh seeds of the cucurbita maxima, or pumpkin, are sold in large quantities at the herb-shops, both as an article of food and as a domestic remedy for tape-worm. Their purgative action is but slight, and they produce neither nausea nor pain in the abdomen, but they appear to destroy the worm. If the patient have fairly good teeth, he may be directed to eat an ounce and a half of the seeds, or the same quantity may be beaten up into a paste with sugar and water. The seeds should be taken early in the morning, the patient having fasted since the noon of the previous day, and should be followed by a dose of castor-oil at an interval of three or four hours. It is asserted that the head and cervical segments of the worm seldom fail to appear in the stools. It is worthy of notice that seeds of pumpkins grown in cooler latitudes do not possess vermicide properties; some seeds obtained in Paris and in Germany did not produce the desired effect. There is, however, no difficulty in obtaining the seeds from San Remo, for Signor Vacchieri, of the Farmacia Internazionale, has been good enough to promise to forward a supply *gratis* to any hospital or dispensary. The seeds have a sweet and pleasant taste, and, when beaten up with a little sugar, are freely taken by children. [This is one of the oldest tape-worm remedies, and, we think, the best.—L. P. Y.]

Fistula in Ano.—W. H. Lambart, M. D., etc., in London Lancet: During the last five years I have had under my care several cases of fistula in ano. All but the last were subjected to the division of the sphincter ani with the knife, and, although varying considerably in the length of time required to heal the wound, made good and perfect recovery. With the last I adopted a different method. It was a complete fistula, having one opening in the bowel above the sphincter, and another (external) near the anus, whence frequently fecal matter exuded. Having cleared the bowels thoroughly, and then secured them against disturbance for two or three days, I introduced to the bottom of the fistula, in a hollow tube, some pure carbolic acid in a liquid state. The first application seemed to close the internal opening; the second, introduced the same way, required a less deep insertion; the third less still, and so on until the sinus became completely closed. About two months have now elapsed. The patient has had no return of the affection, and declares himself perfectly well.

Dysidrosis and its Morbid Anatomy.—Dr. Tilbury Fox, in the course of a clinical lecture lately delivered at University College Hospital, reported in the British Medical Journal, thus gives his idea of the morbid anatomy of dysidrosis, a dermal inflammation first described by him in 1873: "It seems to me that there is a sudden efflux of sweat, and the flow is so rapid that it can not escape; the whole gland is distended, at least its duct, and the fluid passes up from below only to block up the upper portion of the duct by pressing together the twists of the duct in that part of the cutis where it runs in a spiral manner. If there be sudden pressure from below, the spiral twist of the duct must greatly favor the dilatation of the duct. In sudamina, I take it, the opening is plugged by exuviæ, and the sweat finds its way laterally between the bony layers of the cuticle." Dr. Fox defines dysidrosis as an inflammatory disease of the skin, commencing in the sweat-apparatus, and characterized in its early stage anatomically by the development of little vesicles imbedded in the skin, which occupy the site and are produced by the distension of the sweat-ducts by fluid sweat rapidly becoming mixed with and altered by inflammatory fluid. This disease is usually confounded with acute eczema.

Phosphide of Zinc, in a granule of from one to two fifteenths of a grain, thrice daily, seems to have proved an effectual remedy for hysteria, in the hands of Dr. Gross.—*Canada Medical Record.*

Preparations of Arsenic used in Medicine.—Theodore Metcalfe, in note to Dr. Storer's paper in Boston Medical Journal: The only arsenical preparations are the liq. potassæ arsenitis, liq. sodæ arsenitis, liq. arsenici chloridi, and a solution of chlorophosphide of arsenic, recommended by Dr. Hammond, of New York. The arseniates of ammonia, potassa, and soda are in use; also Donovan's solution, iodide of arsenic, and arseniates of antimony, copper, iron, quinia, and strychnia. Pastes of arsenic I have never had any occasion to make, nor any fumigations, except in one instance, when I had an order to saturate cigars with liq. potass. arsen. The arsenious acid in pills is also considerably used, and arsenic combined with quinia, iron, etc. Orpiment, a tersulphuret of arsenic, consisting of one equivalent of arsenic and three of sulphur, is used only as a pigment and a depilatory. Realgar, a bisulphuret—one equivalent of arsenic and two of sulphur—is used only as a pigment. Neither of the sulphides—that is, sulphurets—of arsenic are supposed to be so poisonous as the arsenic itself, but so far as I know they are never prescribed. The most recent medical literature that I have at hand gives nothing new in arsenical remedies.